

REMARKS

Claims 12-24 are pending in the present application. Claim 24 has been added. The subject matter of the various claims was commonly owned at the time of the invention because all inventors were regular employees of the Applicant at that time of the invention and obligated to assign any patent application to the Applicant.

Objections to the Drawings

The Examiner objected to the drawings for missing a "prior art" labeling of Fig. 1. Applicant hereby submits a corrected page 1 of the drawings in which Fig. 1 is labeled with "PRIOR ART."

Claim rejections 35 USC §103

Claims 12-23 have been rejected as being unpatentable over Takaku et al. in view of applicant's admitted prior art. The Examiner states that Takaku teaches all the limitations of claims 12-23 except the internal EGR. Applicant respectfully disagrees. The independent claim 12 comprises limitations neither shown nor suggested by Takaku. According to the present invention, a thorough mixture of the exhaust gas which remains in the cylinder (internal EGR) with the incoming air which might be mixed with exhaust gas (external EGR) is accomplished by providing the incoming air or air/exhaust gas mixture with a specific tumble charging movement. The axis of rotation of the drawn in gas created by this tumble lies substantially transverse to the piston movement. According to the present invention only such a specific movement of the incoming gas provides for a much better mixture of the incoming gas and the gas remaining in the cylinder.

Takaku discloses a system which includes an air flow intensifying component that may use a tumble control valve. However, Takaku is silent with respect to what kind of tumble movement with respect to the piston movement is created. Takaku does not mention in which way a mixture of the incoming gas with the remaining gas is effected because Takaku does not

provide for an internal EGR. Thus, Takaku is not prior art which addresses internal EGR and would therefore most likely not be considered by a person skilled in the art. However, Takaku does not disclose to generate a tumble swirl transverse to the piston movement.

Claims 12-23 have been rejected as being unpatentable over Nishimura et al in view of applicant's admitted prior art. The Examiner states that Nishimura teaches all the limitations of claims 12-23 except the internal EGR. Applicant respectfully disagrees. The same arguments as discussed above apply for Nishimura. Nishimura does not provide for internal EGR. Thus, the Nishimura system is also not concerned about any type of mixture of remaining gas and incoming gas because the Nishimura system will not have any remaining gas in the cylinder.

Nishimura discloses in column 5, lns 48-54, that the air stream control valve causes a swirl of intake air abundant in tumble components in a direction of the vertical axis of the cylinder. Thus, Nishimura does not disclose to provide a tumble movement transverse to the piston movement as required by independent claim 12.

Dependent claims 13-23 include all the limitations of independent claim 12 and are therefore patentable at least to the extent of independent claim 12. However, these claims include further limitations not shown in any of the cited references. New independent claim 24 includes the limitations of independent claim 12 and dependent claims 17-19, 21 and 22.

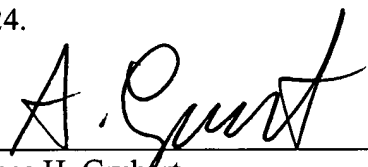
CONCLUSION

The application as defined in the pending claims is patentable under 35 U.S.C. §102 and §103 in view of the cited prior art. Therefore, applicants respectfully request withdrawal of the rejection and allowance of all pending claims.

Applicants do not believe that any other fees are due at this time; however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to this document, the

Commissioner is authorized to deduct the fees from Deposit Account No. 02-0383, (*formerly Baker & Botts, L.L.P.*,) Order Number 070255.0624.

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